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| EXAMINER |
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HUFFMAN, JULIAN D

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2853

DATE MAILED: 10/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

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|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/611,422 | Applicant(s) CHUN, YOUNG-SUN | |
| | Examiner Julian D. Huffman | Art Unit 2853 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6, 11, 18 and 19 is/are allowed.
- 6) ☒ Claim(s) 7-10, 12-15 and 20-23 is/are rejected.
- 7) ☒ Claim(s) 16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2 August 2005 has been entered.

Claim Objections

2. Claims 13 and 22 are objected to because of the following informalities:

In claims 13 and 22, the language "the first and second test marks", found in lines 5-6, lacks antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2853

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 13 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Haselby et al. (U.S. 5,250,956).

Haselby et al. discloses:

With regards to claim 13, an apparatus (fig. 6) for measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 6), the apparatus comprising:

a test marking print-directing unit (element 45) which prints two test marks on a printing medium according to a designated error distance (fig. 13a, designated error distance is 0, column 14, lines 37-45);

an error distance detecting unit which detects an actual error distance of only the first and second test marks for compensating for the image alignment error according to the detected actual error distance and the designated error distance (65, column 14, lines 37-45, if the detected error distance is different from the designated error distance, an error is detected).

With regards to claim 22, a method of measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 6), the method comprising:

printing only two test marks on a printing medium according to a designated error distance (fig. 13 and column 14, lines 37-45); and

detecting an actual error of only the first and second test marks for compensating for the image alignment error according to the detected actual error distance and the designated error distance (column 14, lines 37-45).

5. Claims 7-10, 12-15, 20, 21 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikeda (U.S. 6,607,260 B1).

Ikeda discloses:

With regards to claim 7, an apparatus for measuring image alignment errors for image formation in an image forming apparatus having a carriage (fig. 1, abstract), the apparatus comprising:

a test mark print-directing unit (fig. 3) which directs the carriage to print two test marks (figs. 1 and 4, a-F and a-R) separated from each other by a designated error distance (0) on a printing medium on which images are printed (column 13, lines 57-65, column 14, lines 13-30);

a test mark sensing unit (fig. 3, element 1) which senses only the two test marks for the measuring of image alignment error (the sensor is capable of sensing only the two test marks), and outputs a sensed result of the two test marks (column 13, lines 39-42, column 14, lines 44-46 and 52-55);

a reference clock generating unit (fig. 3, element 7) which generates a reference clock and outputs the generated reference clock (column 13, lines 47-48);

a sensed instant of time measuring unit (fig. 3, counter, element 9) which compares the sensed result of the two test marks with the generated reference clock to measure instants of time when the two test marks are sensed according to a movement of the carriage, and outputs the measured instants of time (column 13, lines 48-50, column 14, line 63-column 15, line 10); and

an error distance detecting unit (fig. 3, element 13) which detects an actual error distance of the two test marks using the measured instants of time and a moving speed of the carriage, and outputs the detected actual error distance (column 13, lines 51-53 and column 15, lines 6-40).

With regards to claims 8 and 9, the test mark print-directing unit directs the carriage to print each of the two test marks on the printing medium using different image printing methods or in different printing directions (first mark is printed in first direction which is a first printing method and second mark is printed in second direction which is a second printing method, column 14, lines 18-22).

With regards to claim 10, the error distance detecting unit (fig. 3, element 13) detects a time difference between the measured instants of time of the two test marks and multiplies the detected time difference by the moving speed of the carriage to output the detected actual error distance (column 15, line 26).

With regards to claim 12, an image alignment correction value detecting unit (fig. 3, element 13) which obtains a distance difference between the designated error distance and the actual error distance, detects an image alignment correction value

from the distance difference, and outputs the detected image alignment correction value to compensate for the image alignment errors (column 15, lines 6-39).

With regards to claim 13, Ikeda discloses an apparatus for measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 1, abstract), the apparatus comprising:

a test mark print-directing unit (fig. 3) which prints two test marks on a printing medium (figs. 1 and 4, a-F and a-R) according to a designated error distance (column 13, lines 57-65, column 14, lines 13-30); and

an error distance detecting unit (fig. 1, element 13) which detects an actual error distance of only the first and second test marks for compensating for the image alignment error according to the detected actual error distance and the designated error distance (column 13, lines 51-53 and column 15, lines 6-40, the measured distances are compared to determine a distance between the forward and backward test marks, this distance is the detected actual error distance; the detection of the first mark relative to the reference and the second mark relative to the reference do not constitute detection of an error, it is only in the calculation steps that an error is detected).

With regards to claim 14, an apparatus for measuring an image alignment error for image formation in an image forming apparatus having a carriage (fig. 1, abstract), the apparatus comprising:

a test mark print-directing unit (fig. 3) which directs the carriage to print first and second test marks (figs. 1 and 4, a-F and a-R) on a printing medium according to a designated error distance (column 13, lines 57-65, column 14, lines 13-30);

a test mark sensing unit (fig. 3, element 1) which senses only the first and second test marks (the test mark sensing unit is capable of detecting only the two marks), for the measuring of image alignment error, and outputs first and second sensed results of the first and second test marks (column 13, lines 39-42, column 14, lines 44-46 and 52-55);

a sensed instant of time measuring unit (fig. 3, element 7) which measures instants of time when the first and second test marks are sensed, according to the first and second sensed results, and outputs the measured instants of time (column 13, lines 48-50, column 14, line 63-column 15, line 10); and

an error distance detecting unit (fig. 3, element 13) which detects an actual error distance of the first and second test marks using the measured instants of time to compensate for the image alignment error according to the detected actual error distance of the first and second test marks (column 13, lines 51-53 and column 15, lines 6-40).

With regards to claim 15, a reference clock generating unit (fig. 3, element 7) which generates a reference clock, wherein the sensed instant of time measuring unit generates the measured instants of time according to the sensed result of the first and second test marks and the generated reference clock (column 13, lines 48-50, column 14, line 63-column 15, line 10).

With regards to claim 20, the carriage moves in a first direction, the printing medium moves in a second direction, and the first and second test marks are printed in one of the first and second directions (fig. 1).

With regards to claim 21, the carriage moves with respect to the printing medium to print an image in another printing direction according to a difference between the actual error distance and the designated error distance (column 15, lines 31-39).

With regards to claim 23, a method of measuring an image alignment error for image formation in an image forming apparatus having a carriage, the method comprising:

directing the carriage to print first and second test marks (Figs. 1 and 4, dots forming the patch a-ref 1 represent the first marks, while dots forming the patches a-F, a-R represent the second marks) on a printing medium according to a designated error distance (column 14, lines 12-22);

sensing only the first and second test marks, for the measuring of the image alignment error, to output first and second sensed results of the first and second test marks (column 14, lines 44-46);

measuring instants of time when only the first and second test marks are sensed, according to the first and second sensed results to output the measured instants of time (column 14, lines 56-67); and

detecting an actual error distance of only the first and second test marks using

the measured instants of time to compensate for the image alignment error according to the detected actual error distance of the first and second test marks (column 15, lines 6-39).

Response to Arguments

6. Applicant's arguments, see pages 10-12 of the response, filed 2 August 2005, with respect to claim(s) 1-4 and 6 as amended have been fully considered and are persuasive. Therefore, the rejection has been withdrawn and the claims are allowed. However, applicant's arguments regarding claims 7-10, 12-17 and 20-23 as amended are not persuasive.

Applicant's argument (page 9 of the response) that the claims should have been interpreted in light of the specification is noted. Applicant cites several cases for support, however, the USPTO uses a different standard for construing claims than that used by district courts; during examination the USPTO must give claims their broadest reasonable interpretation, MPEP 2111.01 [R-2]. Accordingly, this argument is not persuasive.

With regards to apparatus claims 7-10 and 12, applicant's argument that Ikeda et al. does not disclose "sensing only the two test marks" is noted. However, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the

intended use, then it meets the claim. In the limitation of “a test mark sensing unit *which senses only the two test marks, for the measuring of image alignment error*”, the italicized text is language directed towards the intended use of the sensing unit. The optical sensing unit of Ikeda et al. is capable of being operated such that it senses only two test marks, therefore Ikeda discloses this limitation. Applicant’s argument regarding claim 14 is not persuasive for the same reasons provided above.

With regards to claim 13, applicant’s argument that Ikeda et al. senses at least 3 marks and therefore does not disclose “an error distance detecting unit which detects an actual error distance of only the first and second test marks for compensating for the image alignment error according to the detected actual error distance and the designated error distance” is noted. However, the language of claim 13 fails to mention the sensing of only two marks. Rather, the claim language states that the error distance of only two marks is detected. This is precisely what Ikeda does. Ikeda detects the distance from a reference mark to a forward mark and a distance from the reference mark to a backward mark. By comparing these distances, Ikeda detects an error distance of only the first and second marks. Further, it is respectfully suggested that applicant consider the actual passages cited in the rejection and not the passages referenced in the remarks, which are directed to an entirely different correction process.

Applicant’s argument regarding amended claim 22 is noted, however the argument is moot in view of a new grounds of rejection necessitated by the amendment; anticipation by Haselby et al. (U.S. 5,250,956).

Applicant's argument regarding claim 23, that Ikeda does not disclose "sensing only the first and second test marks" is noted. However, the claim language merely includes the step of "directing the carriage to print first and second test marks" and "sensing only the first and second test marks". The claim language is not limited to only a first mark and a second mark. Rather, plural first marks and plural second marks read on the claim language and each dot printed in a test patch may be considered to be a mark. Accordingly, Ikeda discloses printing first marks, the first marks being a series of dots which form the reference patch, and printing second test marks, the second test marks being the forward and reverse direction dots that form the forward and reverse patches, and sensing only the first and second marks. In light of this interpretation, Ikeda discloses the limitations of claim 23.

Allowable Subject Matter

7. Claims 1-6, 11, 18 and 19 are allowed.

Claims 16 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The primary reason for the indication of allowable subject matter in claims 16 and 17 is the inclusion of the limitations of an apparatus for measuring an image alignment error for image formation in an image forming apparatus, including, a sensed instant of time measuring unit which measure instants of time when first and second test marks are sensed and wherein the carriage moves at a moving speed to print the first and second test marks, and an error distance detecting unit generates the actual error distance of the first and second test marks using the measured instants of time and the moving speed of the carriage. It is these limitations found in the claims as they are claimed in the combination which have not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Upon further review, Ikeda et al. uses the moving speed of the carriage while it is sensing the printed test marks to detect an error distance. Ikeda et al. is silent as to the moving speed of the carriage during printing (column 15, lines 12-13 and 26).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (571) 272-2147. The examiner can normally be reached on 10:00a.m.-6:30p.m. Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Julian D. Huffman
19 October 2005